**GEMCITABINE & CARBOPLATIN for Bladder Cancer**

**DRUG ADMINISTRATION SCHEDULE**

<table>
<thead>
<tr>
<th>Day</th>
<th>Drug</th>
<th>Dose</th>
<th>Route</th>
<th>Diluent &amp; Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sodium Chloride 0.9%</td>
<td>250/500ml</td>
<td>Infusion</td>
<td>Fast Running</td>
</tr>
<tr>
<td></td>
<td>Dexamethasone</td>
<td>8mg</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ondansetron</td>
<td>8mg</td>
<td>Oral /Slow bolus/15 min infusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carboplatin AUC 5</td>
<td>IV Infusion</td>
<td>500/250ml 5% Glucose over 30 to 60 Minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gemcitabine 1000mg/m²</td>
<td>Intravenous</td>
<td>250ml 0.9% Sodium Chloride* over 30 minutes</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sodium Chloride 0.9%</td>
<td>250/500ml</td>
<td>Infusion</td>
<td>Fast Running</td>
</tr>
<tr>
<td></td>
<td>Metoclopramide</td>
<td>10mg</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gemcitabine 1000mg/m²</td>
<td>Intravenous</td>
<td>250ml 0.9% Sodium Chloride over 30 minutes</td>
<td></td>
</tr>
</tbody>
</table>

*Ondansetron IV must be infused over 15 minutes in patients over 65 years of age.

**CARBOPLATIN DOSAGE**
Dose (mg) = AUC x (GFR + 25)
Where the GFR is the non-corrected EDTA clearance. If estimated GFR is undertaken the Wright formula must be used with AUC 5. Avoid use of Cockcroft & Gault formula as it is less accurate.

**CYCLE LENGTH AND NUMBER OF DAYS**
Administered on a 21-day cycle, with treatment on Day 1 and 8 for up to 6 cycles.

**APPROVED INDICATIONS**
Treatment of locally advanced or metastatic TCC (Transitional Cell Carcinoma) of the Urinary Bladder in patients unsuitable for treatment with cisplatin.

**PREMEDICATION**
As above

**RECOMMENDED TAKE HOME MEDICATION**
Ondansetron 8mg twice daily for 2 days (not usually required for day 8)
Dexamethasone 4mg twice daily for 1 day (not usually required for day 8)
Metoclopramide 10mg three times daily as required
*Suggested antiemetic regimen - may vary with local practice. See CINV policy for more details*

**INVESTIGATIONS / MONITORING REQUIRED**
*Pre-treatment*
FBC, U&Es, LFTs, baseline radiology (CXR/ CT). Repeat radiology after 2 cycles.
Check renal function before commencing platinum. Use EDTA or Wright formulae to calculate GFR.
*Prior to each cycle*
FBC, U&Es, LFTs as required; GFR doubled checked using Wright formula.

**ASSESSMENT OF RESPONSE**
Metastatic: Tumour size and patient symptomatic response
GEMCITABINE & CARBOPLATIN
for Bladder Cancer

REVIEW BY CLINICIAN
To be reviewed by either a Nurse, Pharmacist or Clinician before every cycle.

NURSE / PHARMACIST LED REVIEW
On cycles where not seen by clinician.

ADMINISTRATION NOTES
Use caution if the patient is also receiving radiotherapy, as Gemcitabine is a radiation sensitiser

EXTRAVASATION  See NCA/ Local Policy

TOXICITIES
- Risk of hypersensitivity and anaphylaxis, particularly when used second-line, start within a few minutes of administration
- Nausea and vomiting
- Myelosuppression, particularly, thrombocytopenia, anaemia & neutropenia
- Nephrotoxicity
- Peripheral neuropathy
- Otological impairment, especially at 8000 Hz
- Haematuria
- Dizziness during infusion
- Oedema/peripheral oedema
- Rarely pulmonary effects e.g. Acute Respiratory Distress Syndrome (ARDS) Lethargy
- Mild Alopecia

DOSE MODIFICATION / TREATMENT DELAYS
Haematological Toxicity:
Proceed on Day 1 if:

| ANC ≥ 1.5 | PLT ≥ 100 | If outside range, delay treatment for 1 week |

Proceed on Day 8 if:

| WBC ≥ 2.0 | ANC ≥ 1.0 | PLT ≥ 50 and no evidence of bleeding |

NB On Day 8 of the cycle patients whose bloods are not at the required level will miss that dose and proceed to the next cycle of treatment as planned

- If WCC, Platelets or ANC still below required levels after a 1-week deferral, delay treatment again and patient will need assessed and chemotherapy dose reduced by Oncologist
- If Hb < 10 & patient symptomatic will need blood transfusion but may proceed with chemotherapy as planned if performance status (PS) stable.
- If pre-treatment (Day 1) U&E’s & LFT’s abnormal, delay treatment 1 week and discuss with Oncologist as may need dose reduction, On Day 8 patient will miss that dose and proceed to next cycle of chemotherapy as planned.
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Non-Haematological Toxicity:

<table>
<thead>
<tr>
<th>NCI CTC Grade</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>100% of both drugs</td>
</tr>
<tr>
<td>3 (except for nausea/ vomiting and alopecia) (see below for neurotoxicity)</td>
<td>Delay until recovery to baseline, then resume at a reduced dose level of both drugs as deemed appropriate by the patient’s consultant.</td>
</tr>
</tbody>
</table>

*Doses should remain reduced in subsequent cycles. Dose reductions are commonly 25%.

Renal function
- If creatinine level increases by >20% from baseline discuss with consultant and consider repeating EDTA.
- If serum creatinine is above 130ml/min check with prescriber before proceeding.

Neurotoxicity

<table>
<thead>
<tr>
<th>NCI CTC Grade</th>
<th>Platinum Dose</th>
<th>Gemcitabine Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>50%*</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Omit</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>Discontinue drug</td>
<td></td>
</tr>
</tbody>
</table>

*Doses should remain reduced in subsequent cycles.

- If PS deteriorates to 3 or 4 and on assessment patient is more symptomatic withhold treatment and discuss with Oncologist
- Gemcitabine should be used with caution in patients with renal or hepatic impairment. Patients with pre-existing renal impairment should be monitored closely for haemolytic uremic syndrome

TREATMENT LOCATION
Can be given at Cancer Centre or Cancer Unit

REFERENCES: